

AMENDMENTS TO THE CLAIMS

Please substitute the following pending claims 2-25 and 27-30 as replacement claims for the previously-pending version of such claims. In this Amendment E, claim 1 is canceled, and claims 2, 4-13, 18-20, 22-25 and 27 are amended.

1. (canceled).

2. (currently amended) The method of claims 3, 14, 15, 16, 17, or 21 ~~or 30~~ wherein the plurality of candidate catalysts are provided at a plurality of sites on a common support.

3. (previously presented) A method for evaluating a plurality of candidate catalysts, the method comprising

- providing a plurality of candidate catalysts having differing compositions in a parallel reactor, the reactor comprising one or more temperature sensors adapted to measure the temperature near the plurality of candidate catalysts, each of the plurality of candidate catalysts being tagged or labeled to identify particular catalyst candidates,
- simultaneously contacting the plurality of candidate catalysts with one or more reactants under reaction conditions to catalyze at least one reaction with each of the plurality of candidate catalysts,
- detecting temperature changes due to the heat of reaction of the catalyzed reactions using the temperature sensors,
- determining the relative efficacy of the plurality of candidate catalysts based on the detected temperature changes,
- collecting candidate catalysts showing catalytic activity, and
- analyzing the tag or label of the collected candidate catalysts to determine the catalyst candidates having catalytic activity.

4. (currently amended) The method of claim 2 ~~+~~ wherein the support is a plate or sheet having a surface comprising the candidate-catalyst-containing sites.

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5. **(currently amended)** The method of claim 2 + wherein the support is a plate having a plurality of wells as candidate-catalyst-containing sites.

6. **(currently amended)** The method of claim 2 + wherein the support is a monolithic support comprising a plurality of reaction channels as candidate-catalyst-containing sites.

7. **(currently amended)** The method of claim 2 + wherein each of the plurality of candidate catalysts is in its own site on the support.

8. **(currently amended)** The method of claim 2 + wherein the temperature sensors are adapted to observe temperature change in the vicinity of the candidate catalysts.

9. **(currently amended)** The method of claims 3, 14, 15 or 21 + wherein the plurality of catalyst candidates are chemical conversion catalysts.

10. **(currently amended)** The method of claims 3, 14, 15 or 21 + wherein the plurality of catalyst candidates are hydrocarbon conversion catalysts.

11. **(currently amended)** The method of claims 3 or 21 + wherein the plurality of catalyst candidates are inorganic catalysts.

12. **(currently amended)** The method of claims 3 or 21 + wherein the plurality of catalyst candidates are metals or metal oxides.

13. **(currently amended)** The method of claims 3 or 21 + wherein the plurality of catalyst candidates are transition metals or transition metal oxides.

14. **(previously presented)** A method for evaluating a plurality of candidate catalysts, the method comprising

providing a plurality of candidate catalysts having differing compositions in a parallel reactor, the reactor comprising one or more temperature sensors adapted to measure the temperature near each of the plurality of candidate catalysts, the plurality of catalyst candidates being zeolites,

simultaneously contacting the plurality of candidate catalysts with one or more reactants under reaction conditions to catalyze at least one reaction with each of the plurality of candidate catalysts,

detecting temperature changes due to the heat of reaction of the catalyzed reactions using the temperature sensors, and

determining the relative efficacy of the plurality of candidate catalysts based on the detected temperature changes.

15. (previously presented) A method for evaluating a plurality of candidate catalysts, the method comprising

providing a plurality of candidate catalysts having differing compositions in a parallel reactor, the reactor comprising one or more temperature sensors adapted to measure the temperature near each of the plurality of candidate catalysts, the plurality of catalyst candidates being metallocenes,

simultaneously contacting the plurality of candidate catalysts with one or more reactants under reaction conditions to catalyze at least one reaction with each of the plurality of candidate catalysts,

detecting temperature changes due to the heat of reaction of the catalyzed reactions using the temperature sensors, and

determining the relative efficacy of the plurality of candidate catalysts based on the detected temperature changes.

16. (previously presented) A method for evaluating a plurality of candidate catalysts, the method comprising

providing a plurality of candidate catalysts having differing compositions in a parallel reactor, the reactor comprising one or more temperature sensors adapted to measure

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the temperature near each of the plurality of candidate catalysts, the plurality of catalyst candidates being enzymes,

simultaneously contacting the plurality of candidate catalysts with one or more reactants under reaction conditions to catalyze at least one reaction with each of the plurality of candidate catalysts,

detecting temperature changes due to the heat of reaction of the catalyzed reactions using the temperature sensors, and

determining the relative efficacy of the plurality of candidate catalysts based on the detected temperature changes.

17. (previously presented) A method for evaluating a plurality of candidate catalysts, the method comprising

providing a plurality of candidate catalysts having differing compositions in a parallel reactor, the reactor comprising one or more temperature sensors adapted to measure the temperature near each of the plurality of candidate catalysts, the plurality of catalyst candidates being cells,

simultaneously contacting the plurality of candidate catalysts with one or more reactants under reaction conditions to catalyze at least one reaction with each of the plurality of candidate catalysts,

detecting temperature changes due to the heat of reaction of the catalyzed reactions using the temperature sensors, and

determining the relative efficacy of the plurality of candidate catalysts based on the detected temperature changes.

18. (currently amended) The method of claims 3, 15, 16, 17 or 21 + wherein the plurality of catalyst candidates are supported catalysts.

19. (currently amended) The method of claims 3, 14, 15, 16, 17 or 21 + wherein the plurality of candidate catalysts are simultaneously contacted with the one or more reactants in a plurality of reactor channels formed in a monolithic support.

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20. (currently amended) The method of claims 14 or 15 + wherein the one or more reactants are in the gas phase.

21. (previously presented) A method for evaluating a plurality of candidate catalysts, the method comprising

providing a plurality of candidate catalysts having differing compositions in a parallel reactor, the reactor comprising one or more temperature sensors adapted to measure the temperature near each of the plurality of candidate catalysts,

simultaneously contacting the plurality of candidate catalysts with one or more reactants under reaction conditions to catalyze at least one reaction with each of the plurality of candidate catalysts, the one or more reactants being in the liquid phase,

detecting temperature changes due to the heat of reaction of the catalyzed reactions using the temperature sensors, and

determining the relative efficacy of the plurality of candidate catalysts based on the detected temperature changes.

22. (currently amended) The method of claims 3, 14, 15, 16, 17 or 21 + wherein the plurality of candidate catalysts comprises fifteen candidate catalysts.

23. (currently amended) The method of claims 3, 14, 15, 16, 17 or 21 + wherein the plurality of candidate catalysts comprises twenty-four candidate catalysts.

24. (currently amended) The method of claims 3, 14, 15 or 21 + wherein the plurality of candidate catalysts are contacted with the one or more reactants under reaction conditions that include a temperature greater than 100 °C, and additionally, or alternatively, a pressure of greater than 1 bar.

25. (currently amended) The method of claims 3 or 21 + wherein the plurality of candidate catalysts are formed by calcining catalyst precursors at different temperatures.

26. (canceled).

27. (currently amended) The method of claims 3, 14, 15, 16, 17 or 21 wherein the plurality of candidate catalysts are simultaneously contacted with the one or more reactants in parallel reactor comprising a plurality of reaction channels, each of the plurality of candidate catalysts being in its own reaction channel.

28. (previously presented) The method of claim 27 wherein the parallel reactor comprises a plurality of reaction channels in a monolithic support.

29. (previously presented) The method of claim 27 wherein the parallel reactor is a flow reactor and the one or more reactants flow through each of the plurality of reaction channels.

30. (currently amended) The A method of claims 3, 14, 15, 16, 17, or 21 wherein for evaluating a plurality of candidate catalysts, the method comprising
the providing a plurality of candidate catalysts are simultaneously contacted with the one or more reactants having differing compositions in a parallel reactor, the reactor comprising one or more temperature sensors adapted to measure the temperature near each of the plurality of candidate catalysts, the parallel reactor being a batch reactor pressurized with the one or more reactants;
~~simultaneously contacting the plurality of candidate catalysts with the one or more reactants under reaction conditions to catalyze at least one reaction with each of the plurality of candidate catalysts;~~
~~detecting temperature changes due to the heat of reaction of the catalyzed reactions using the temperature sensors; and~~
~~determining the relative efficacy of the plurality of candidate catalysts based on the detected temperature changes.~~

31. (canceled).

32. (canceled).